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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,625	03/17/2004	Scott H. Slaughter	O01.04	4799
26344	7590	07/19/2005	EXAMINER	
JENNIFER L. BALES MOUNTAIN VIEW PLAZA 1520 EUCLID CIRCLE LAFAYETTE, CO 80026-1250			GARBER, CHARLES D	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 07/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/802,625	SLAUGHTER ET AL. 	
	Examiner Charles D. Garber	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 17 March 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,2,4,6,9,10 and 12-14 is/are rejected.
- 7) Claim(s) 3,5,7,8 and 11 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>07/29/2004</u> | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, 4, 6, 9, 10, 12, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art (Admission) in view of House et al. (US Patent 4,365,306) and Baziw (US Patent 5,177,709).

Regarding claims 1, 2, 4, 9, 10, 12 and 14, Admission discloses "Parallel Seismic (PS) testing has been employed for such uses as determining the depth of an unknown foundation when the foundation top is not accessible or when the piles are too long and slender to be tested by echo techniques. Typically a borehole is drilled into the soil adjacent to the foundation, and the borehole is cased. In the case where the receiver is a hydrophone, the cased borehole is filled with water. In the case where the receiver is a **geophone**, several geophone receiver components are spaced apart in the borehole. An exposed portion of the foundation is then impacted with a hammer or

the like, and compression or flexural waves travel down the foundation and are transmitted into the surrounding soil. The receiver detects the transmitted signals. The depth of the foundation is indicated by a weaker and slower signal arrival below the tip of the foundation."

Admission however teaches monitoring a foundation and not specifically a shaft.

House teaches similarly monitoring the depth of pile (shaft) during a pile driving operation with a parallel acoustic monitor in order to "control the quality of operation of the pile driving hammer" and "determine if...striking the pile at the desired rate".

It would have been obvious to one having ordinary skill in the art at the time the invention was made to acoustically monitor a shaft or pile in order to determine striking the pile at the desired rate and control the quality of operation of the pile driving hammer.

Admission also teaches a hydrophone or geophone in a borehole rather than a transducer in a cone penetrometer taking measurements at plural depths.

Baziw teaches a "seismic cone (12) is a commercially available cone penetrometer which contains, (among other transducers) a **geophone** (not shown) for **detecting seismic waves penetrating through the ground....**When th[e] apparatus is in use, the SCPT cone (12) is advanced to a predetermined depth. The apparatus is now ready to begin acquiring data for the purpose of estimating shear and/or compression wave velocities....A seismic event is generated....a hammer blow....or other device". Baziw also teaches "the penetrometer is advanced another increment and the process is repeated. By comparing the arrival times of the constituent

waveforms integrated in different seismic records obtained from the same probe hole, it is possible to estimate the average velocities of said constituent waveforms over the depth increment under study"

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a seismic cone with geophone (transducer) as this is effective for detecting seismic waves penetrating through the ground. Taking measurements at plural depths permits estimation of average velocities which is specifically useful "for plotting the soil profile" including any objects within the soil.

As for claims 6 and 13, Examiner takes Official Notice that use of an accelerometer for detecting seismic events is widely known and one having ordinary skill would have known that an accelerometer are readily available, compact and inexpensive alternatives to geophones at the time of the invention.

#### ***Allowable Subject Matter***

Claims 3, 5, 7, 8, 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nelson (US Patent 5,432,305) discloses using cone penetrometer to locate objects underground.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles D. Garber whose telephone number is (571) 272-2194. The examiner can normally be reached on 6:30 a.m. to 3:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cdg



CHARLES GARBER  
PRIMARY EXAMINER